

***37th Annual Eastern Fish Health Workshop
High Peaks Resort, Lake Placid, New York
23 - 27 April 2012***

AGENDA

Monday , April 23

- 5:00 – 6:30 pm **Registration And Reception**
Hors d'oeuvres and Cash Bar
- 6:45 Cipriano **Welcome to the 37th Annual Eastern Fish Health Workshop**
- 7:00 **The Aquatic Animal Detective: Tails From The Deep!**
– **Robert Durborow, moderator**

A collection of perplexing, bemusing, and unusual short case reports that should keep you guessing the punch line to the very end. This opening night session is your big opportunity to show off some great pictures or to seek help with your unsolved cases from a room full of experts. Save your research projects for the regular sessions, but share your cool cases here in this informal setting. If you have great photos documenting a truly spectacular case of a common disease, this is your opportunity. If there is an interesting once in a lifetime occurrence, we'd love to see it. If you have a fascinating case that has you perplexed, bring it along. If you've already solved a hard one, and want to stump the audience, this is your moment. Its opening night and we are expecting a magical mix of education and entertainment.

- 7:00 That's Ich, With An "S" - Robert Durborow
7:10 A Tale From The Underground - George Duckwall
7:20 I Think He's Crazy, But Marlin Says He Shore Likes The Beach - Wes Baumgartner
7:30 Alewife In Sodus Bay, Lake Ontario; If Not VHSV, What? - Paul Bowser
7:40 Guppies In The Lab: Be Careful What You Ask For - Kate Breyer
7:50 Case Of The Crooked Koi - Myron Keebus
8:00 The Fish That Didn't Know When To Quit - Esteban Soto
8:10 Discus And The Deathly Hallows? - Natalie K. Steckler
8:20 "Shedding Light" On A Toxic Release Fish Kill In An Alabama Catfish Pond – Bill Hemstreet
8:30 Bad Backs and Gassy Seahorses: I'm Getting Too Old for this Tank - Shane Boylan
8:40 What Killed The Silver Carp In The Mississippi - Lester Khoo
8:50 Of Bloats and Bubbles, You Can't Keep a Good Fish Down - Andy Goodwin
- 9:00 **Break**
- 9:20 Intensively Cultured Fish Foie Gras - Laura Coffee
9:30 Granulomas In Weakfish: An Encore - Emily Cornwell
9:40 What The Heck Is In The Water - Helen Roberts
9:50 Malnutrition Or Just A Bad Case Of Indigestion? - S. A. Smith
10:00 Watch Out, Not Only In Catfish! - Esteban Soto
10:10 Under the Denticles, We'll Be Havin' Some Fun - Jennifer Dill
10:20 Yet Another Channel Catfish Disease – We Need This Like A Hole in the Head - Jeff Wolf
- 10:30 National Veterinary Accreditation Program - Aquatic Certification: What You Need To Know
– Kathleen Hartman
- 10:45 **Adjourn**

Tuesday, April 24

- 7:00 **Breakfast**

Special Session 1: **Scratch My Itch: Those Pesky Sea Lice** – **Deborah Bouchard, moderator**

Recent developments in sea lice biology and control methods in the Northeast will be evaluated. Advances to understand and control this parasite are presented.

- 8:00 Scratch My Itch: Those Pesky Sea Lice - Ian Bricknell
8:15 Rise And Fall Of The Planet Of The Lice: Salmon And Lice Interactions - Mark Fast

- 8:30 Is There An Increased Risk Of ISAV In ‘Lousy’ Fish? The Interactions Of Lice, ISAV And Salmon - Sarah Barker
- 8:45 Fishing For Sea Lice: It’s All About The Bait - Shawn Robinson
- 9:00 Excuse Me, Could You Pass The Salt Please? - Mike Pietrak
- 9:15 Microsporidia: Curious Hyperparasites Of Sea Lice Or Biological Control Agents - Simon Jones
- 9:30 Orally Administered Immunostimulants Enhance Inflammation And Reduce Sea Lice Burdens On Atlantic Salmon - Mark Fast
- 9:45 Density Of The Waterborne Parasite, *Ceratomyxa shasta*, And Biological Effects On Salmon – Sascha Hallett

10:00 **Morning Break** *Coffee, tea*

Special Session 2: **Living On A Prayer: Habitat’s Effects On Aquatic Animal Health**
– **Paul Anderson, moderator**

Creation of optimal habitats for aquatic animals in aquaria and aquaculture requires that the natural history, sensory biology, and subjective experience of each species be considered. Aquarium designs that ignore these considerations often result in unusual consequences.

- 10:30 Do You Sense What I Sense? How Sensory Stimuli In Aquaria Impact Fish Health. - Paul Anderson
- 10:45 Four Seasons In One Day – The Art Of Feeling SAD - Tim Bowden
- 11:00 Stabilizing The Secret Garden: Zooxanthellae And Photosynthetic Reef Invertebrates - Barbara Sheppard
- 11:15 When More Is Not Merrier: Identifying Optimal Syngnathid Breeding Densities Using Data From Wild Populations - Heather Masonjones
- 11:30 Ulcerative Dermatitis In Syngnathids - Veronique Lepage
- 11:45 Possible Effects of Ocean Acidification On The Development Of Juvenile American Lobsters, *Homarus americanus*- Joshua Hall

12:00 **Lunch**

Special Session 3: **IVb Or Not IVb: VHS Is In The House!**
– **Paul Bowser, moderator**

Viral Hemorrhagic Septicemia Virus Genotype IVb was detected in the Great Lakes Basin in 2005 and caused fish kills in 2005 – 2007. Although kills have not continued from 2008 until now, the virus persists in numerous fishes. An overview of our knowledge of VHSV IVb is provided.

- 1:00 Introduction And Historical Overview - Paul Bowser
- 1:15 Interactions Between VHSV IVb And Its Hosts - Mohamed Faisal
- 1:30 Dead Fish Study And Other Unexpected Laboratory Findings - James Casey
- 1:45 Inhibition Of VHSV Replication In An Epithelial Cell Line - John Lumsden
- 2:00 Genetic Diversity Of VHSV IVb - Gael Kurath
- 2:15 VHSV: The Ring Trial - Janet Warg
- 2:30 VHS Risk Survey And VHS Surveillance On Wisconsin Fish Farms - Myron Kebus
- 2:45 Role Of Round Goby In The Maintenance And Spread Of VHSV Type Ivb In Lake Ontario And The St. Lawrence River - Emily Cornwell

3:00 **Afternoon Break** *Coffee, tea, sodas*

Special Session 4: **As The Ocean Turns: How Environment Affects Coral Health**
– **Drew Harvell, Courtney Couch and Colleen Burge, moderators**

The session will focus on environmental drivers, such as temperature, acidification and eutrophication in facilitating coral disease and altering host-pathogen interactions. Coral disease patho-systems from the Caribbean and Pacific are included.

- 3:30 As The Ocean Turns: How Environment Affects Coral Health - Drew Harvell
- 3:45 Environmental Factors And The Initiation Of Black Band Disease: Revising Koch's Postulates Yet Again - Laurie Richardson

- 4:00 Spatial And Temporal Epidemiology Of Coral Diseases - Erin Muller
- 4:15 The Role Of Environment, Host Demographics And Microbes In *Porites lobata* Growth Anomalies Along West Hawaii – Courtney Couch
- 4:30 Bleaching And Disease: The 2005 Coral Mortality Event Revisited In 2010 In The Southern Caribbean - Ernesto Weil
- 4:45 Friend Or Foe: Association Of Labyrinthulomycetes With The Caribbean Sea Fan -Colleen Burge
- 5:00 What Is Really Killing The Caribbean Acroporids - Esther Peters
- 5:15 Is That Coral Really Healthy? What Histology Can Tell Us About Corals That Lack Outward Signs Of Stress - Angela Richards Donà
- 5:30 Tissue Loss In Multiple Indo-Pacific Reef Corals In A Public Display Aquarium – Brent Whitaker
- 5:45 Coral Culture, Health and Restoration – Oh My! - Ilze Berzins

6:00 Adjourn

7:00 Dinner

8:00 *In Memorium: Dr Frank Hetrick*

Wednesday, April 25

7:00 **Breakfast**

Gewneral Session 1: - moderator

- 8:00 East Side Versus West Side, The Biggie Smalls-Tupak Round Goby VHSV IVb Challenges - Rod Getchell
- 8:15 Temporary Protection Of Rainbow Trout Gill Epithelial Cells From Infection With Viral Hemorrhagic Septicemia Virus IVb – Lowia Al-Hussinee
- 8:30 The Sad Truth About Aquareoviruses; They Are Boring - Andy Goodwin
- 8:45 Predictors Of Mortality In Koi Herpesvirus-Exposed Koi And Disease Manifestations At Low Water Temperatures - Keiko Hirokawa
- 9:00 Spring Viremia Of Carp Virus In Ontario Baitfish – Ehab Misk
- 9:15 Kinetics Of Infection Following Vaccination With Modified Live CyHV-3 Vaccine And Challenge With Wild-Type CyHV-3 Virus In Koi Carp – E. Scott Weber
- 9:30 *In Vivo* Testing Of A Recombinant IHN Virus With A SVCV G-Gene Substitution In Koi - Evi Emmenegger
- 9:45 Building A BSL-3 Research Wetlab: How Difficult Could That Be? - Frank Panek

10:00 **Morning Break** *Coffee, tea*

**Special Session 5: Reel Experts Tackle Sportfish Health
– Denise Petty, moderator**

Presentations that address new diseases affecting sportfish, as well as improved diagnostics for disease detection in wild or captive populations of sportfish and novel strategies for health management will be discussed. The session will address health concerns of fresh water and marine species, as well as free-ranging and captive populations.

- 10:30 Non-Lethal Health Assessment In Red Drum - Carla Garreau
- 10:45 White Catfish Mortality In The St. John's River - Theresa Cody
- 11:00 And The Heart Stopped. - Denise Petty
- 11:15 Identification And Sequencing Of Interferon- γ Homologue In Striped Bass (*Morone saxatilis*) – Brandon Rowan
- 11:30 Method Validation Of WBC Counts For Formalin Preserved Blood Samples From Fish - Jill Arnold
- 11:45 The Rising Tide Conservation Initiative - Roy Yanong

12:00 **Lunch**

Species Session 6: **Aquatic Animal Health At The Holocene/Anthropocene Thermal Maximum**
– Dave Gauthier, moderator

Climate change (global warming) has the potential to influence disease ecology in terrestrial and aquatic systems. This may be most evident in certain terrestrial vector-borne diseases, but our understanding of climate change-related impacts on aquatic animal diseases is improving. Effects of increasing temperatures on fish and shellfish diseases, alone and in context of other anthropogenic impacts, are explored.

- 1:00 Aquatic Animal Health At The Holocene/Anthropocene Thermal Maximum – Dave Gauthier
- 1:15 Impacts Of Temperature On Mycobacterial Disease In Striped Bass (*Morone saxatilis*):
Laboratory Challenges - Wolf Vogelbein
- 1:30 Environmental Change And Marine Molluscan Diseases: Dynamic Effects And Varying Impacts -
Kim Reece
- 1:45 Differential impact of hypoxia on the performance of triploid and diploid oysters - Jessica Piesz

Special Session 7: **No Truffles About It: They Are What They Eat**
– Stacey Gore, moderator

Advances in fish nutrition and the impact of nutritional imbalances on fish health are examined. As ingredient prices and sustainability influence diet formulations, the production of a premium fish depends upon the affordability of quality feeds. Whether you're in the food-fish, aquarium, or natural resources sector, nutrition is regarded as a limiting factor for efficient production.

- 2:00 Garlic (Allicin): More Than Just Flavor For Your Fish! - Kate Breyer
- 2:15 Does Histidine Supplementation Prevent Cataract Formation In Atlantic Cod Exposed To Elevated
Levels Of Dissolved Carbon Dioxide - Kevin Neves
- 2:30 Inhibition Of *Aeromonas salmonicida* By Essential Oils And The Influence Of Dietary Essential
Oils On Resistance Of Atlantic Salmon To Furunculosis - H. George Ketola
- 2:45 You Are What You Eat: Supplementing Mysid Shrimp For Optimal Sea Horse Health - Lisa
Hoopes
- 3:00 **Afternoon Break** *Coffee, tea, sodas*

General Session 2 -, moderator

- 3:30 Chlamydia-Like Bacteria In Fish - Elena Contador
- 3:45 Bacterial Coldwater Disease Pathogenesis – Maureen Jarau
- 4:00 Effects Of Exposure Route And Disease Course On Non-Lethal Sampling For *Renibacterium*
salmoninarum In Chinook Salmon - Carolyn Schulz
- 4:15 Interactions Between *Renibacterium salmoninarum* And The Ciliate *Tetrahymena pyriformis*- Jim
Daly
- 4:30 *Chryseobacterium aahlii* sp. novum, A Novel Pathogen Of Salmonids - Tom Loch
- 4:45 Vibriosis In Juvenile Atlantic Cod: Investigating Routes Of Invasion - Jennifer Fortier
- 5:00 Phenotypic And Genotypic Diversity Of *Aeromonas salmonicida* Infecting Michigan Fishes –
Arfang Diamanka
- 5:15 Chronic Expression Of Lesion And *Aeromonas salmonicida* Infection Among Smallmouth Bass,
Redbreast Sunfish And Rockbass In Virginia Rivers - Rocco Cipriano
- 5:30 Iron Uptake By *Edwardsiella ictaluri* - Javier Santander
- 5:45 Potential Causes Of Declining *Diporeia* spp. Populations In The Laurentian Great Lakes -Andrew
Winters
- 6:00 **Adjourn**

Thursday, April 26

- 7:00 **Breakfast**

General Session 3 -, moderator

- 8:00 Abnormal Conchiolin Deposit In The Baltic Clam, *Macoma balthica*, In Chesapeake Bay - Shawn
McLaughlin

- 8:15 Health Assessment Of Florida Clam Stocks, Continued - Denise Petty
- 8:30 Advances In Disease Treatment In A Living Fossil, The Chambered Nautilus - Gregory Barord
- 8:45 Toxicity Of Tobacco Dust In Two Species Of Snails - S. A. Smith

General Session 4 - ,moderator

- 9:00 Immune Transcriptome In Oysters In Response To Bacterial And Parasitic Challenge -Marta Gomez-Chiarri
- 9:15 Immune Cell Populations Of The Flounder Peritoneum During Bacterial Infection - Pilar Nelson
- 9:30 Serum IgM Response Of Captive Zebra Sharks To Salivary Gland Proteins Of The Marine Leech *Branchellion torpedinis* - Dave Marancik
- 9:45 Innate And Acquired Immune Responses In The Channel Catfish - V Gregory Chinchar
- 10:00 **Morning Break** *Coffee, tea*

Special Session 8: Out Of Sight, But Should We Know Better? – Isaure deBuron

Parasites are often small or, hidden, and their key roles in ecosystems are often ignored. Such organisms are typically acknowledged only after they cause injury. To know them best we must understand their ecology ; - a multidimensional endeavor that is tricky to tackle.

- 10:30 Parasite Life Cycles: In The Pursuit Of Missing Links - Isaure Deburon
- 10:45 A Missing Link In The Life Cycle Of *Spironucleus* – How Individual Trophozoites Become Clusters Of Cysts - Sarah Poynton
- 11:00 Application Of Molecular Biology In Elucidation Of Digenetic Life Cycles In Catfish Aquaculture - Matt Griffin
- 11:15 Early Development Of *Ichthyophonus* In Two Fish Hosts: From Circulating Blood Stage To Fully Mature Tissue Schizonts - Richard Kocan
- 11:30 Survey Data Reveal Diversity Of Pacific Northwest Myxozoa - Sascha Hallet
- 11:45 Genetic Variation Of Environmental-Derived *Hematodinium* sp. In Chincoteague Bay - Joseph Pitula
- 12:00 **Lunch**

General Session 5: - , moderator

- 1:00 *Peachia* spp. Parasitism Of *Cyanea capillata*, Lion's Mane Jelly - Shane Boylan
- 1:15 Rapid Diagnosis Of Proliferative Gill Disease (PGD) In Catfish Using A Cryostat - Bill Hemstreet
- 1:30 Using Smallmouth Buffalo To Reduce Incidence And Prevalence Of Proliferative Gill Disease In Catfish Aquaculture: An Update - Matt Griffin
- 1:45 The Role Of Arginine In The *Edwardsiella ictaluri*- Channel Catfish Macrophage Dynamic - Wes Baumgartner
- 2:00 *Francisella noatunensis* subps. *orientalis* Pathogenesis Analyzed By Experimental Immersion Challenge In *Tilapia nilotica*– Scott Kidd
- 2:15 Effects Of Temperature And Salt Concentration On *Francisella asiatica* Infections In *Tilapia (Oreochromis niloticus)* - Esteban Soto
- 2:30 Gross Description, Histology And Morphometric Analysis Of The Agglomerular Kidney In The Lined Seahorse, *Hippocampus erectus* - Susan Fogelson
- 2:45 Hepatocellular Atrophy And Degeneration In Feed-Trained Largemouth Bass *Micropterus salmoides* - Kali Holder
- 3:00 **Afternoon Break** *Coffee, tea, sodas*

Special session 9: Those Amazing Ranaviruses: Lethal For Fish, Reptiles And Amphibians - Matt Gray

Ranaviruses are emerging pathogens known to cause disease in fish, reptiles and amphibians. This session will provide insight into virus evolution and host range, immune response and evasion, pathological signs, possible mechanisms contributing to outbreaks, and conservation strategies.

- 3:30 Ranaviruses: Not Just Frog Viruses Anymore: History, Phylogeny, And Genetics - V. Gregory Chinchar
- 3:45 Isolation Of Frog Virus 3 From Pallid Sturgeon Suggests An Interclass Host Shift - Tom Waltzek
- 4:00 What The Frog *Xenopus* Can Teach Us About Host Immune Defenses To Emerging Ranaviruses - Jacques Robert
- 4:15 Superspreader Species Facilitate Ranavirus Outbreaks In Amphibian Communities - Matthew Gray
- 4:30 Ranaviruses In Chelonians And Other Reptiles - April Johnson
- 4:45 Comparative Pathology Of Ranaviruses: Histopathology Across Vertebrate Classes - Debra Miller
- 5:00 Ranaviruses In Frogs And Fish In Southeast Asia - Somkiat Kanchanakhan
- 5:15 Why Hasn't Epizootic Hematopoietic Necrosis Virus Spread In Australia?: Results Of An Epidemiological Survey - Richard Whittington

5:30 **Adjourn**

7:00 Cash Bar

7:30 Dinner

8:30 Dance

Friday, April 27

7:00 **Breakfast**

The World Organization for Animal Health: Understanding the OIE Organized by Thomas Waltzek and Kathleen Hartman

The World Organization for Animal Health [Office International des Epizooties (OIE)] was created in 1924 as an international agreement between 24 countries to help control and report animal diseases on a global level. Currently, there are 178 Member Countries making the OIE the foremost intergovernmental organization for the improvement of animal health and welfare worldwide. As a reference organization to the World Trade Organization (WTO), the OIE provides technical support on animal diseases and disease control and eradication measures. The OIE's Aquatic Animal Health Code suggests global standards to improve aquatic animal health, including standards for international trade. Animal health measures may be used by veterinary authorities of importing and exporting countries to detect, report, and control pathogens of aquatic animals and, in the case of zoonotic diseases, for humans. Measures are developed to prevent transfer of pathogens via international trade, while avoiding unjustified barriers to trade.

First session hosted by Kathleen Hartman: Regulations

Objectives: History, purpose and mission of the OIE, overview of 2012 OIE-listed pathogens, OIE vs. other approaches/regulations to aquatic animal health and trade, and U.S. National Animal Health Reporting System (NAHRS). 8:00

- 8:00 Gary Egrie, USDA APHIS – Keynote address (confirmed speaker)
- 8:30 Gary Egrie, USDA APHIS – OIE overview (confirmed speaker)
- 9:00 Andy Goodwin, UAPB – OIE vs. other (AFS BB) (confirmed speaker)
- 9:30 Joanne Constantine, CFIA (confirmed)
- 10:00 **Break**
- 10:30 Lori Gustafson, USDA APHIS, NSU (tentative/confirmed speaker)
- 11:00 Kathleen Hartman – Reportable & Reporting of Aquatic Animal Diseases (confirmed speaker)

Second session hosted by Tom Waltzek: OIE Reportable Agents 1130 - 1530

Objectives: Brief history/discovery/introduction of the OIE-listed diseases, significance to industry/wildlife, current distribution of the disease, and reference laboratories and approved diagnostics.

- 1130 Iridoviruses (amphibian ranaviruses, EHN, RSIV) - Gregory Chinchar (confirmed speaker)
- 12:00 **Lunch**

1:00 KHV/SVCV - Keith Way (confirmed speaker)
1:300 IHN/VHSV - Gael Kurath (confirmed speaker)
2:30 ISAV - Fred Kibenge (confirmed speaker)
3:00 EUS - Somkiat Kanchanakhan (tentative/confirmed speaker)

3:30 **Adjourn**